

ABSTRACT

A power regulation system with reversing contactors is coupled to an AC power source outputting an input voltage. The system has a first transformer to receive the input
5 voltage and generate a control voltage. The system also has a second transformer that has a primary coil and a secondary coil, which are electromagnetically coupled to each other and so arranged that when the control voltage from the first transformer is applied to the primary coil, an output voltage is generated between a first end and a second end of the secondary coil, wherein the output voltage is substantially 180° out of phase from the
10 input voltage so as to generate an effective voltage applied to a load, and wherein the effective voltage is less than the input voltage and substantially equals to the difference between the input voltage and the output voltage, resulting a reduction in power consumption of the load. The system further has a series contactor electrically coupled in series to the input node of the first transformer, and a shunt contactor electrically coupled
15 in parallel across the primary coil of the second transformer. The series contactor and the shunt contactor are configured such that the system outputs the effective voltage that is less than the input voltage in a normal condition, and isolates the first transformer and returns a line voltage in an alarm condition.